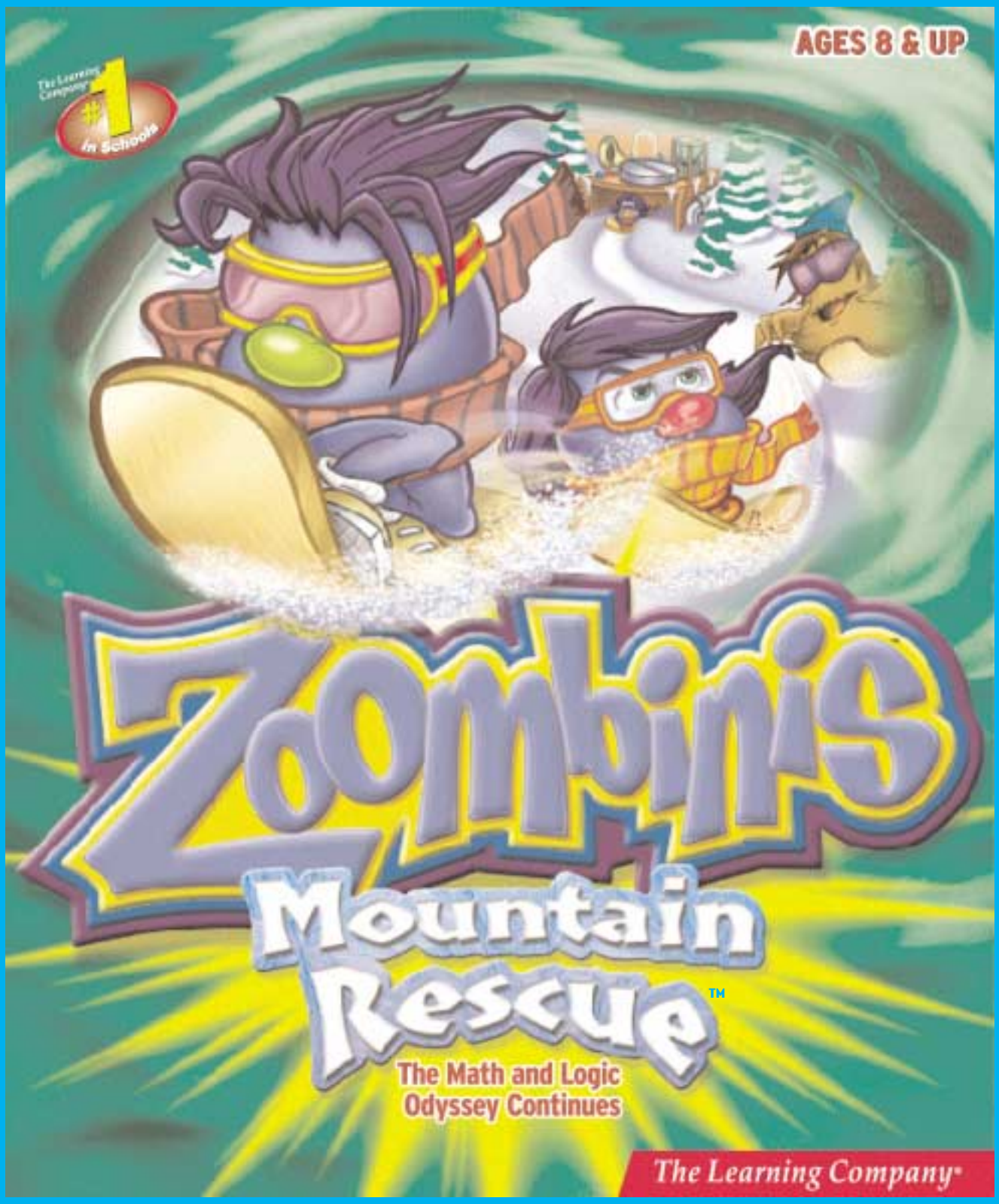

USER'S GUIDE

TERC

MILES SOUND SYSTEM

polygon & pixel™

BINK VIDEO

ABOUT THE LEARNING COMPANY®

Since 1980, The Learning Company has consistently produced the highest quality educational software available. Our award-winning products help develop your child's underlying thinking skills and creativity, while reinforcing important areas of the basic curriculum, such as reading, writing, and mathematics.

Every Zoombinis product undergoes extensive research and testing, with input from educational professionals, parents, and children. Each product features a precise balance of educational content and entertainment value, so your child has fun while learning!

How do we do it? Enchanting characters. Challenging situations. Rich game environments. State-of-the-art graphics and sound. Progressive skill levels and game segments that can be customized to meet your child's individual needs.

As parents and educators, we recognize that education is a continuous process. So we developed a complete system of age-appropriate programs. Carefully sequenced by age groups, this system makes it easy for you to confidently choose the right products for your children at each stage of their educational development. As an integral part of The Learning Company's system, each of our products addresses a specific age group and subject area with appropriate themes to heighten your child's interest in learning.

THE USER'S GUIDE

This user's guide is made up of two parts. In the first section of this guide, you will learn about how to install the program, how the game and its components work, and how to navigate through the activities. The second section of the user's guide, the Parents' Corner, focuses on the educational makeup of *Zoombinis Mountain Rescue*™.

- Start with the **Installation Instructions** to help you set up the game.
- Check out the **Rescue Missions** section to learn how to navigate through the game.
- Go see the **Parents' Corner** section to review the educational focus of the software.

What Is Parents' Corner?

The Parents' Corner is where parents can find tools to help children integrate what they learn at the computer into their daily lives. Written with the help of parents and educators, the Parents' Corner describes the skills each activity encourages your child to develop, suggests skill-building activities which you and your child can share, and identifies educational resources to further a child's experience.

Zoombinis Mountain Rescue was based on concepts by Scot Osterweil and Chris Hancock of TERC®, an education research and development center, located in Cambridge, MA. TERC is an organization which focuses on the research and development of innovative ideas and materials for science and mathematics education, often including creative uses of technology.

School Editions of *Zoombinis Mountain Rescue* and other Learning Company titles, containing classroom activities and resources, are available from The Learning Company. Visit our school Web site at http://www.learningcompanyschool.com for more information.

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GETTING STARTED

SYSTEM REQUIREMENTS

WINDOWS® 95/98/Me/2000/XP

- ❑ 200 MHz Pentium® (or equivalent) or better
- ❑ 32 MB RAM
- ❑ 50 MB free hard disk space*
- ❑ 8x CD-ROM drive
- ❑ Windows-compatible sound card 16-bit
- ❑ Minimum graphic resolution: 800x600

MACINTOSH® SYSTEM 8.6 TO OS X

- ❑ 180 MHz PowerPC®
- ❑ 64 MB RAM
- ❑ 50 MB free hard disk space*
- ❑ 8x CD-ROM drive
- ❑ Monitor capable of displaying millions of colors, 13" or larger
- ❑ Mouse

* An additional 7 MB of hard disk space may be required to install Adobe® Acrobat® Reader.

In the interest of product improvement, information and specifications represented here are subject to change without notice

SETTING UP AND STARTING THE PROGRAM

WINDOWS®

These instructions assume that the AutoPlay feature of Windows is turned on. (AutoPlay is usually enabled when you install Windows on your computer. See your Windows documentation for more information.)

To set up the program:

1. Insert the *Zoombinis Mountain Rescue* CD into your CD-ROM drive.
2. Click on YES at the install prompt to begin the setup process.
3. Follow the onscreen instructions to complete the setup process.

Once you've completed the setup, the launcher program will run automatically any time you insert the *Zoombinis Mountain Rescue* CD into the CD-ROM drive.

To start the program:

1. Insert the *Zoombinis Mountain Rescue* CD into your CD-ROM drive.
2. Click on PLAY.

Whenever you exit the program, you return to the desktop. You can restart the program directly from the desktop as long as the program CD is still in the CD-ROM drive. (These instructions also apply if AutoPlay is turned off.)

Zoombinis
Mountain Rescue
PLAY
DEMO
VISIT ONLINE
OPTIONS
QUIT
Click here to begin playing the game
Click here to see demos of other products from The Learning Company
Click to go online to The Learning Company
Click here to go to the User's Guide for help
Click here to go to the Options screen
Click here to reinstall or uninstall the game
To exit the game and return to the desktop, click QUIT

MACINTOSH®

To set up the program:

1. Insert the *Zoombinis Mountain Rescue* CD into your CD-ROM drive.
2. Double-click on the *Zoombinis Mountain Rescue* program icon.
3. Click on YES and follow the instructions to complete the set-up process.

To start the program:

1. Insert the *Zoombinis Mountain Rescue* CD into your CD-ROM drive.
2. Double-click on the *Zoombinis Mountain Rescue* program icon.

THE HISTORY OF ZOOMBINIS

INTRODUCTION TO THE STORY

Once upon a time, not very far from here, there was a beautiful land of lush forests and clear, sparkling waters. And in this wonderful place lived a happy bunch of creatures known as the Zoombinis. The Zoombinis all looked a little different—different hair styles, eyes, noses, and feet. But those differences meant nothing to the Zoombinis. They lived in peace and prosperity in the town of Zoombiniville.

One Thursday morning, after a dark and fierce storm, a Zoombini named Binky ran into town, and told the most alarming story. It seems that Binky was gathering strawberries with a group of his friends. As the group journeyed home, carrying the ripest and most perfect strawberries, a great storm blew in and the Zoombinis ran into a nearby cave for shelter. As the storm raged and the lightning flashed, the Zoombinis were startled to find that they were surrounded by the strangest creatures. What could they be? Overcome with fear, Binky ran out of the cave.

Just as he emerged, a bolt of lightning struck the cave's mechanical door. With a roar and screech, it closed tight and trapped Binky's friends inside … inside with the mysterious creatures! Binky tried with all his might to open the door, but it was just too heavy. Exhausted, and worried about his friends, Binky rushed home to Zoombiniville to get help.

Binky's tale made the Zoombinis very worried. The caves were rumored to be in Boolie territory. No Zoombini had ever met a Boolie, so they thought that Boolies were something to be feared. What if the strange creatures in the cave were Boolies?

Now, it's up to you. The Zoombinis have decided that a rescue party must be formed. And you, my friend, will lead them. Your journey will not be easy, as the Zoombinis must travel over numerous rivers, valleys, and perilous mountain passes before reaching the rescue site. Once you get there, you'll discover that your mission has just begun. Some of the trapped Zoombinis have disappeared with the mysterious creatures from the caves' depths. Who knows how far you and the Zoombinis will have to travel, or what strange beings you will encounter, before the rescue mission is accomplished.

And remember that long, long ago, Marco Bini, the wise and famous Zoombini explorer, ventured through this land and discovered many of its secrets. If you should ever get stuck, his words of advice can be found on these pages as the rescue mission unfolds.

SIGNING IN

Click on a name in the games list to choose it

Click to change the game options

Click here to begin playing the game you've selected

Click on the arrows to scroll through the games list to find your game

To exit the game and return to the desktop, click QUIT.

Click here to enter a new name in the games list

To play the game in Practice mode, click here

When you launch *Zoombinis Mountain Rescue* for the first time, the Sign-in screen will appear automatically, where you can sign in and start a new game. After you have played the game, you may play an existing game or start a new one from the Sign-in screen.

To start a new game:

- ❏ Begin typing a name for your game (it will appear automatically in the purple box) or click the NEW PLAYER button to enter a new name. Your name can be up to 16 characters long. Then click the START GAME button to begin.

To play a previously saved game:

- ❏ To go to a previously saved adventure, find the name of your game on the list, click on it. If you don't see the name of your game, use the ↑ and ↓ scroll buttons on the right side of the list until you find it. Click on the START GAME button to continue.

> **NOTE:** The sign-in list is full when it has 99 names on it. You'll need to remove a name before you can enter a new one. Click on the name you want to remove, then press the backspace/delete key. This will permanently erase that player's game information from the hard disk.

- ❏ Click on the PRACTICE button at the sign-in screen to go directly to the Map screen. Click on any puzzle to practice it. You can return to a saved adventure whenever you're ready. See the *Practice Mode* section for more information.
- ❏ Click on QUIT button to exit the game and return to the desktop.

GAME COMPONENTS

BUTTONS YOU SHOULD KNOW

The Help Button

This button is located in the lower-left corner of each screen. This button will activate a text box with information about your objective at that place in the game. At puzzle screens, the Help button will bring up a text box that will give you some clues to help you solve the activity. It will not solve the puzzle for you, but instead will provide hints or tips to help you come up with a solution. Click on the ◁ and ▷ buttons to move through the Help pages. Click the OK button when you are finished reading and are ready to continue your game.

The Map Button

This button appears throughout the adventure in the bottom-left area of the screen. Click on this button to go to the Map. Be aware that if you go to the Map while playing an activity, your current team of Zoombinis will be lost and sent back to Zoombiniville or to their last Rescue Site.

The Go Button

This blue arrow is located in the lower-left corner of the screen. Click on the Go button to go to the next place along your journey. If you cannot click the Go button, it means that you have not completed enough of the mission or you do not have enough Zoombinis to go forward. Click on the Map button to return to Zoombiniville or the last Rescue Site and bring more Zoombinis through the game in order to continue. When the Go button flashes, it indicates that you have saved enough Zoombinis to go forward, and you can click the Go button to continue the game. However, you may want to try to get all of your rescue party through before going on to the next activity. Any Zoombinis that are left along the way will return home and be waiting for you back at the previous Rescue Site or in Zoombiniville.

When you have successfully completed an activity, or if you have run out of attempts, the Go button flashes to indicate that you should continue your journey.

Transitions

You can interrupt the movie that plays between activities by clicking on the screen to go immediately to the next puzzle.

THE MAP

You're in luck! As the leader of the journey, you can access a Map of the entire region to assist you in guiding the Zoombinis on their rescue mission. This Map shows the progress of your adventure, and your destinations along the path. The path is color-coded to reflect its difficulty level.

- In Practice Mode, you can click on an activity to practice; however, shaded areas indicate destinations you cannot go to in Practice Mode.
- In Game Mode, you can click on the junction—Zoombiniville or the Rescue Sites—where Zoombinis from previous adventures (if you are playing a saved game) are waiting to continue their mission.

Game Legend

Your rescue mission will be a long journey with many Zoombinis on each path, but you can keep track of them using the Game Legend, located at the upper-left corner of the Map. The Game Legend displays the number of Zoombinis at various locations in the adventure: Zoombiniville, Rescue Site I, Rescue Site II, and Booliewood.

Difficulty Legend

The Map legend shows you the degree of difficulty you have chosen. Each level is represented by a different color path:

LEVELS

When you first launch *Zoombinis Mountain Rescue*, the program will begin automatically with the NOT SO EASY difficulty level. The game will automatically change the level of difficulty once you have successfully moved three full Zoombini rescue parties through an activity three consecutive times. Your progress on the Map will show your difficulty level with a different colored trail.

Once you have completed a level successfully, you may not return to a puzzle at that level unless you are in Practice Mode, where you can change the level of difficulty manually.

OPTIONS SCREEN

You can access the Options screen from the Sign-in screen or the Map screen by clicking the OPTIONS button. At the Options screen, you can adjust the volume levels for the game.

Music / Sound FX / Dialog Levels

Control the settings for the game's Music, Sound FX, and Dialogues. Move the sliders back and forth to increase or decrease the volume levels of these options. When you let go of a slider, a sound sample is played at the selected volume.

❑ Click on the ✔ button to save your changes or the ✘ button to discard any changes, exit the Options screen, and return to the game.

HINT: To turn off the game's sound when you are in Game mode, press the ALT-S keys (Windows) or ⌘-S (Macintosh). Press the keys again to turn the sound back on.

PRACTICE MODE

You may want to build up your skills in a certain activity by playing *Zoombinis Mountain Rescue* in Practice Mode, which is accessible at the Map screen. When you are in Practice Mode, you can choose to play any of the game's puzzles. The puzzle will open with a rescue party of Zoombinis already in place. You can change the degree of difficulty in Practice Mode by clicking on the desired path color in the Map legend. All paths on the map change to the new color, and you will play the practice puzzles at the selected difficulty level for as long as you want to help sharpen your activity skills.

HOW TO QUIT

You may quit at any time during your game. From both the Game and Practice modes, click the Map icon to access the Map screen and press the QUIT button. The QUIT button allows you to quit the adventure and save your current game automatically. When you click the QUIT button, you will see the question, "Do you really want to quit?" Click on the YES button to quit or the NO button to return to the Map screen to continue playing.

NOTE: Remember, if you go to the Map screen while you are playing an activity, your current team of Zoombinis will be lost and sent back to Zoombiniville or to their last Rescue Site.

ZOOMBINIVILLE—STARTING THE GAME

Zoombiniville

Zoombiniville's calm and happiness have been shattered by Binky's story of the Zoombinis in peril. His comrades are trapped in a scary cave on the far side of the mountains. Your help is needed to recruit and lead the rescue teams that will travel on this adventure.

HOW TO START AN ADVENTURE

You will begin your journey from Zoombiniville, where you recruit the Zoombini rescue parties. Each rescue party must have 16 Zoombinis in it to begin.

The Zoombini Picker

1. Use the Zoombini Picker to select the characteristics of the Zoombinis. Click on the boxes in the overhead panel to choose the style of the different features—eyes, nose color, feet, hair—for each Zoombini in the rescue party.
2. Click the ✔ button under the Zoombini Picker to have your new Zoombini join the rescue party. Each new Zoombini will be given a name by the program.
3. To create a Zoombini automatically, click the "1" button underneath the Zoombini Picker.
4. Once you have 16 Zoombinis, click the Go button at the lower left of the screen and the rescue party will march off towards its destination.

When you are creating the Zoombinis, remember to select a variety of features in each group. Some of the puzzles may be less interesting and less challenging when too many of the Zoombinis are the same or similar. The Zoombini Picker will help to prevent this from happening by limiting the number of matching characteristics in each party of Zoombinis.

RECRUITING ZOOMBINIS AUTOMATICALLY

Everyone in Zoombiniville wants to help rescue their fellow Zoombinis from the cave, so you may want to put together a group quickly.

1. To generate an entire rescue party at once, click the "16" button underneath the Zoombini Picker, and 16 random Zoombinis will be created for you automatically.

> **HINT:** If you have created fewer than 16 Zoombinis and you want to generate 16 more quickly, you can click the "16" button and the remaining number of Zoombinis will be made automatically to complete a full rescue party.

2. Click the Go button at the lower left of the screen to set off on your rescue mission.

RESCUE SITES

As you lead the Zoombinis through the adventure, you will come to Rescue Sites along the paths. These spots allow the Zoombinis to gather and rest before moving on to their next mission. There's plenty of room for each new rescue party reaching the Rescue Sites, as the extra Zoombinis can rest in the storage devices where they will wait for you to bring them forward later.

When you are ready to go to the next puzzle, you must have eight Zoombinis standing in the circles on the path. If you are at Rescue Site I, click on the direction you want the Zoombinis to travel. If you are at Rescue Site II, click on the Go button to continue your journey.

Rescue Site I

Rescue Site II

LOSING ZOOMBINIS

There will be times when some members of your Zoombini rescue party don't make it through a mission, and they appear to get lost. Don't worry! Zoombinis are clever, and they always manage to find their way back to their last Rescue Site. When you return to a Rescue Site or go back to Zoombiniville, you may see a few familiar faces already there waiting for you. They are the wandering Zoombinis who have rejoined the group, and they are ready to tackle another rescue mission.

If you go to the Map screen while playing an activity, your team of Zoombinis will appear to be "lost." In fact, you will be able to find these Zoombinis back at a Rescue Site or in Zoombiniville as well.

THE RESCUE MISSIONS

TURTLE HURDLE

A family of turtles can help them cross the stream. If the Zoombinis are in order, it works like a dream.

The brave Zoombinis have embarked on their adventure and find themselves at the edge of a river. There are many baby turtles in the water. The turtles are kind, and don't mind helping the Zoombinis get across the water, but they will only transport the Zoombinis in a particular order.

HOW TO PLAY

Help the Zoombinis cross the river by placing them in a precise order on the backs of the baby turtles. Click on a Zoombini and place it on the back of one of the turtles. If you correctly place the Zoombini, it will stay on the turtle. If it's on the wrong turtle, the Zoombini will be flipped into the water and will pop up again in its correct place. For each incorrect placement, a support beam on the boat dock will collapse.

Read the engraved signs on a nearby tree trunk to assist your strategy. You only have so many chances to put the Zoombinis in their places before the creaky dock collapses, leaving the remaining Zoombinis stranded and unable to cross the river.

When you have correctly placed all 16 of the Zoombinis on the baby turtles, the Mother Turtle will retract her head and allow you to journey forward. Click the Go button to continue.

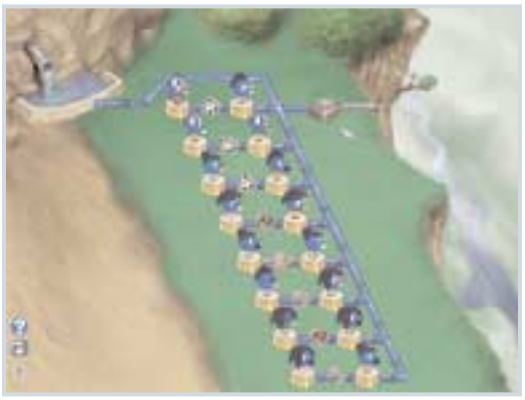
Levels

At the NOT SO EASY level, you will be able to make three incorrect placements before the boat dock collapses, leaving the remaining Zoombinis behind.

When you play at the OH SO HARD level, there are fewer clues provided on the tree trunk, so you are allowed four incorrect placements at this level. You are allowed six chances at the VERY HARD level before the boat dock collapses.

PIPES OF PALOO

The Zoombinis' courage is true. But now they must face the Pipes of Paloo. A perfect match will help them slide right through.



The Zoombinis have successfully crossed the river, and you've brought them to the edge of a cliff. High above the wild river below, a system of pipes and valves is laid out before you. The only safe way to bring the Zoombinis over the raging waterfall is through this network of pipes.

HOW TO PLAY

Match pairs of Zoombinis with the same features—eyes, nose color, feet, or hair—to the labels on the pipes to allow the water to flow. Each pipe segment is labeled with an image of the characteristic that should match it. Position two Zoombinis with matching features at the pipe junctions. When they are in the correct place, those pipes will fill with water and turn blue. You can move the Zoombinis' placement if you change your mind. Try to arrange the Zoombinis so that the entire pipe system is filled with water.

After you have positioned all the Zoombinis, open the master valve at the edge of the cliff. The correctly positioned pairs of Zoombinis are sucked into the water system and go whooshing through the pipes. If the Zoombinis have not made the proper connections, water will not reach their pipes. These Zoombinis will not be taken into the water system, and they will be stranded up top while their companions continue on their journey below.

Levels

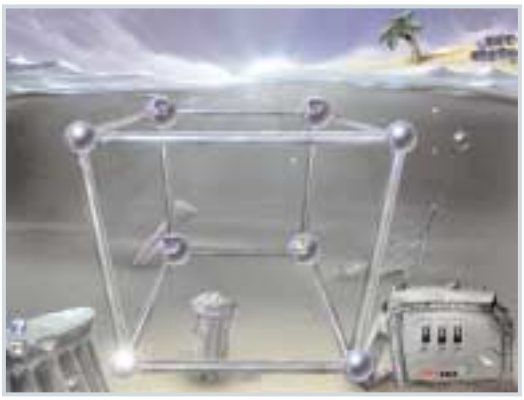
At the NOT SO EASY level, the network of pipes contains eight junctions. If you have arrived with a full rescue party, try to get all 16 Zoombinis correctly placed on the pipe junctions by matching their features.

At the OH SO HARD level, the pipe system contains five branches connected to a central basin. All the Zoombinis are networked toward this central Zoombini, which leads to the master valve. Matching the features to the labels becomes more complex at this level.

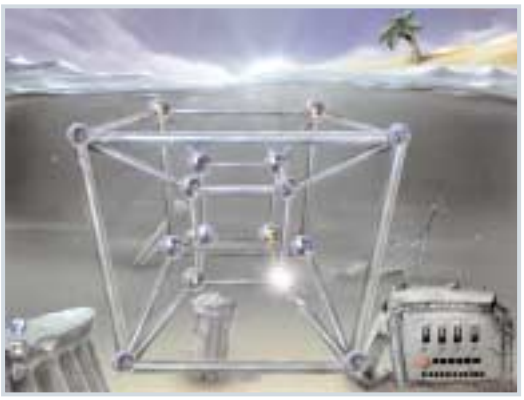
The VERY HARD level presents a complex pipe system, and all the Zoombinis must still connect to the central Zoombini in order to allow the water to flow through all of the pipes.

AQUA CUBE

They came to a stop, inside a mysterious cube, confused and unsure of just what to do. It seemed that escape was controlled by three levers, and rescue was waiting for those who were clever.



Aqua Cube at the NOT SO EASY level



Aqua Cube at the VERY HARD level

After going through the Pipes of Paloo, the Zoombinis find themselves inside a cube in a mysterious underwater world. Unfortunately, there are Fleens lurking in some of the bubbles who must be avoided at all costs. How will the Zoombinis escape while avoiding the Fleens?

HOW TO PLAY

Use the levers on the control panel to glide the magic ball of light over the Zoombinis' bubbles to bring them to the safety of the beach. The levers are not labeled, so you must discover which directions they move the light. Each lever will toggle the magic ball of light either up/down, backward/forward, or left/right.

Your goal is to pick up all the Zoombinis without going back over your route. Avoid picking up a nasty Fleen, or trouble will occur! When you successfully pick up all the Zoombinis, click the Go button to continue. If you run out of moves before you rescue all of the Zoombinis, click the Go button and Zoombinis you have collected so far will march along the shore toward the first Rescue Site.

Levels

You only get six moves at the NOT SO EASY level, so watch the Move Gauge to see how many moves you have remaining.

At the OH SO HARD level, a red warp button appears under the levers that allows you to plot a series of movements in advance. Click on the warp button, select the levers for your moves, and all of your moves will execute at once, using only one of your turns. This warp can skip over the nasty Fleens that may be in your path. Make sure you plot your moves in the time indicated by the flashing lights. At the OH SO HARD level, you have six moves, plus one warp move per puzzle.

At the VERY HARD level, a fourth lever appears in the panel to control movement in the complex cube (movement between the inner and outer cubes). You will get 11 moves and two warp moves at this level.

BEETLE BUG ALLEY

Eight brave Zoombinis have chosen to go left. But the Hall of the Scarabs has stopped them in their tracks. The doors of the scarabs are closed up in stone, and can only be opened if the scarab is home.

A party of eight Zoombinis leaves Rescue Site I and heads into a dark tunnel, hoping to find the missing Zoombinis. They soon find themselves at a wall with colored markers carved into the rock. Upon each marker sits a beautiful scarab beetle of a different color. Below these beetles are four Zoombini-sized stone doors that are shut tight. Mysterious patterns are outlined on the stone tablets under the beetles. Can you figure out the key that opens the doors for the Zoombinis?

HOW TO PLAY

Your goal is to have each beetle rest upon a marker with its matching color. When you press one of the tablets, its pattern appears etched in the stone wall, connecting the colored markers. The beetles scurry along these grooves, change places with each other, and settle into their new locations. If a beetle is sitting upon a marker that matches its color, a small light appears above one of the stone doors.

Continue to press other patterned tablets, so the beetles keep switching places. You will have unlimited moves to try to match the beetles with the marker locations. When you press the tablets in the correct sequence, every beetle will rest on its matching spot and all the lights above the doors will be turned on. Click the lever on the wall to open the doors, and four Zoombinis will pass through to their next destination.

Solve the puzzle a second time to lead the next four Zoombinis through the doors. If you are unable to align all of the beetles, you may be able to open some of the doors, allowing some of the rescue party through, while leaving others behind. Click the Go button to continue on your journey.

Levels

In the OH SO HARD and VERY HARD levels, the puzzle gets more complex with more beetles and more complicated patterns on the tablets.

CHEZ NORF

The Zoombinis emerge from the caves to the snowy Norf Village. To make each Norf happy, and to pass through the Norfs' borders, feed each hungry Norf all the food that it orders.

Your journey through the caves has been a long one, and the outside world beckons. The Zoombinis climb out of the caves and find themselves in a snow-covered land populated by the Norfs. In Norf Village, the Zoombinis quickly realize that the Norfs are not hostile, but they certainly are bossy. The Norfs insist that before the Zoombinis continue on their rescue mission, they must work at the local restaurant, Chez Norf. You will help feed the very picky Norf customers who are waiting for service at the counter.

HOW TO PLAY

Provide the best service in the land! Help the Zoombinis serve the meal that each Norf wants to eat. When you click on a Norf, it will give you clues regarding what each one wants. You may want to keep track of what items each hungry Norf does or does not want to eat by using the Order Pad at the top left of the screen. After you have heard all of the Norfs' orders, prepare the trays of food with items from the refrigerator. Place the meals in front of the appropriate Norf—and hope the Norf likes the food you prepared. If the order is rejected, look out! Each time you serve up a correct meal, some of the Zoombinis are allowed to quit working at Chez Norf.

Click the Go button to leave the icy cold of Norf Village and reach the second Rescue Site.

Levels

At the NOT SO EASY level, you will prepare meal trays with a main dish and a drink, serving four Norfs. You'll get four extra trays to try to serve the Norfs what they want.

At the OH SO HARD level, the meal trays will contain a main dish, a drink, and a dessert, and you'll have three extra attempts to please the Norfs.

Six hungry Norfs demand to be fed at the VERY HARD level, and you're only allowed to serve two incorrect meals before being fired.

HINT: Once you place an item on the tray, you CANNOT select it again to move or remove it, but you CAN replace it by placing a different item in its place.

BUBBLE BUMPERS

In the cold of the caves, Zoombinis don't shiver, but ride magic bubbles across a magical river. It's a mysterious marsh they're trapped inside. And the arrows they find there will be their guide.

After a rest stop at the Rescue Site, the Zoombinis regroup and travel across the wetlands. When they reach the mysterious marsh, they see that it contains a misty pattern floating just above the water's surface. To the left of the marsh are small craters of bubbling hot springs. How will you help the Zoombinis navigate across this grid to safety on the distant shore?

HOW TO PLAY

Your goal is to launch the Zoombinis at the correct entrance, in the right sequence, so all of the Zoombinis will get across. When you place a Zoombini above a crater, it becomes enclosed in a bubble and is sent floating through the grid over the marsh, only to be tossed and turned along the way. Once you send a Zoombini out over the marsh, you cannot control its movement—the items in the grid will move the Zoombini in its bubble. Different directional arrows, diverters, event triggers, magnets, and whirlpools will affect the Zoombini's course. Sometimes direction changes and events occur based on the Zoombini's different traits. Experiment and observe what happens to each Zoombini, depending on its features. You can launch many Zoombinis into the grid at the same time, but be careful! A magnet is the only place where two Zoombinis can collide without popping their bubbles and becoming stuck. However, if two Zoombinis collide elsewhere, they will be sent back to the previous rescue site.

When played out of sequence, some Zoombinis will get across, but others will get stuck in the middle, or disappear down a whirlpool. Those that don't get through will return to the previous Rescue Site.

Levels

When you play at the OH SO HARD and VERY HARD levels there are more entrance points leading to the marsh, and the grid becomes more complex with more and new symbols to affect the course of your Zoombinis on its journey.

MAGIC MIRRORS

"NOW ENTERING FLEEN TERRITORY!" *Which Fleens are real, and which are reflections? Correct choices move the Zoombinis in the right direction.*

Beware, it's a wall of Fleens! Your band of eight Zoombinis will face these strange mirrors showing images of the terrible Fleens. Most of these pictures aren't real, but there is one real Fleen who is lurking behind one of the mirrors, ready to cause trouble. Can you deduce which mirror is hiding the true Fleen?

HOW TO PLAY

Find the real Fleen by firing cannonballs at the mirrors. Click on the mirror you want to hit. The cannonball will smash the mirror you have chosen, then the number of traits that match the hidden Fleen will be shown on the meter on the left of the mirror. When you shoot a cannonball at the mirror hiding the true Fleen, the mirror will shatter to reveal the Fleen, who will slink away down the hallway.

To lead all of the Zoombinis past the Magic Mirrors, you will need to find all of the real Fleens before you run out of your supply of cannon balls.

Levels

At the NOT SO EASY level, you'll have 12 cannonballs to try to identify the Fleens in each of the different puzzles on the wall. At the OH SO HARD level, you only need to identify one Fleen from a larger wall of mirrors. You'll have eight cannonballs to find the Fleen. At the VERY HARD level, the wall of Fleens is even bigger and you are only provided six cannonballs to find the real one.

Press the Go button to continue on to a well-deserved rest at Rescue Site II.

HINT: If you run out of cannonballs, the brave Zoombinis will really throw themselves into the cause of finding the Fleen. Now, when you shoot at the Magic Mirrors, the Zoombinis are your cannonballs! Don't worry—Zoombinis who sacrifice themselves for the mission will return to the Rescue Site or to Zoombiniville.

SNOWBOARD GULCH

So the Zoombinis resolved to head into the valley below. The only way down was a slippery path indeed; a ski slope controlled by grumpy Norfs. The Zoombinis traits show them which way to travel. Don't run into Norfs or plans may unravel.

You're doing great! Continue on from Rescue Site II with a group of eight Zoombinis. Climb over the mountains, and on the far side of the snowy slopes, you will come upon Snowboard Gulch. Once again, the Zoombinis are in an area ruled by the Norfs. The Norfs stand guard over the branches of their icy trails. Can you choose the correct path to lead the Zoombinis past the Norfs?

HOW TO PLAY

Your goal is to send all the Zoombinis down the slopes, avoiding the Norfs blocking the way. By noticing that different traits cause the Zoombinis to take certain paths, you can launch each Zoombini down the correct trail. If a Zoombini goes down the wrong trail, it will run into a Norf, who will not be pleased.

Levels

At the NOT SO EASY level, use the images on the sign at the right of the screen as your guide to sending the snowboarding Zoombinis down the trails. Match a Zoombini's features with the chart to put it on a clear path down the hill. Watch out! If the Norfs get bumped too many times, they'll get angry and close the slopes.

At the more difficult levels, clues on the sign will be hidden from view.

BOOLIE BOGGLE

There, along the river, the Zoombinis meet up with more groups of Boolies. Only happy groups are willing to travel in the Zoombinis borrowed boats. Some Boolies are happy, and others will brood. When hit with a pinball, they change their mood.

The Zoombinis are helping their new friends the Boolies get back to their homeland. To cross the river into Booliewood, the Zoombinis and Boolies will share some boats, but the Boolies will only get into the boats when they are happy. It's your mission to get the happy Boolies into the boats.

HOW TO PLAY

Send the pinballs in the machine down a ramp toward a group of Boolies. Click on the Boolies you want the balls to strike. When the ball cluster bumps into the Boolies, the Boolies change their sad and happy moods in an organized manner. Choose the group of Boolies that will all end up in a happy state after the balls hit. Only then will they jump into a boat with the Zoombinis and sail towards Booliewood. Try to get all of the Boolies into the boats before the machine runs out of its supply of pinballs.

Levels

At the NOT SO EASY level, there are only two Boolies in each group. At the harder levels, the number of Boolies in each group and the number of pinballs are increased. A waiting area will appear, showing the next cluster of pinballs you'll be sending down the ramps.

HINT: The Boolies' behavior is similar to a car odometer, with only 0 or 1 as its numbers. This binary behavior (using a base 2 system) will cause the Boolies to flip in a strategic pattern. Refer to the "Educational Benefits and Puzzle Solving Strategies" section in Parents' Corner for more information.

BOOLIEWOOD

And with the Zoombinis they journeyed, not alone, toward the grand Boolie city that they called their home.

Can it be true? Have you and the Zoombinis reached your final destination? You have been a great leader, as you have brought the Zoombinis all the way to Booliewood, along with many happy Boolies. This is a great day, but as you look around, you will see that the land of Booliewood is deserted. What's the matter?

The Boolies can't find their mayor, the Grand Boolie Boolie. If you and the Zoombinis can bring more Boolies home to Booliewood, the Grand Boolie Boolie will return.

What to Do Next?

Bring more Boolies home, of course! Go back to Zoombiniville to recruit more Zoombinis. Lead them through the mountain rescue adventure, and each time you bring more Boolies home, the town will grow. When Booliewood is fully populated with 400 Boolies, the mayor—the Grand Boolie Boolie—will return home and you'll be in for a special treat!

PARENTS' CORNER

Welcome to the Parents' Corner! You will find information and suggestions here that will help you and your child make the most of the learning opportunities in *Zoombinis Mountain Rescue*.

Zoombinis Mountain Rescue is an engaging game that provides a rich, mathematical learning environment. This game reflects the belief that thinking and the pleasure of insight are important rewards. These kinds of rewards are different for every individual. For this reason the game does not hasten children along a predetermined learning path. Instead it is organized to allow children to choose the focus of their attention, the difficulty of the challenge, and their own definition of success. The game presents interesting objects to manipulate and challenging situations with which to cope. Children invent their own ways of making sense of the situations and of conceptualizing their strategies, and in this way initiate and advance their own learning.

Zoombinis Mountain Rescue is a challenging game. It is normal for a child to experience some difficulty in solving the puzzles, even at the beginning level. However, it is this very challenge that inspires logical thinking and engages children in the problem-solving process. Children must be creative and thoughtful in their attempts at solving the puzzles, and over time they begin to discover the rules and logic in the game. Finding solutions can be especially rewarding when children have used their thinking skills to overcome obstacles on the path to success.

The following sections describe the mathematics of *Zoombinis Mountain Rescue,* the educational benefits, some puzzle-solving strategies, and ideas for enriching and extending what your child learns and experiences at the computer. As you and your child explore the program, you will discover that the nine puzzles, each with three levels, work together to introduce and reinforce important mathematical skills and concepts.

THE MATHEMATICS OF ZOOMBINIS

The mathematics of *Zoombinis Mountain Rescue* is the math of the information age. It is the math children will use in writing computer programs, solving complex problems, organizing data in spreadsheets, and searching for information on computer networks. But it is also math that children can apply to problem-solving situations in all areas of their lives, through logical thinking, experimenting, and organizing information. *Zoombinis Mountain Rescue* offers your child an opportunity to learn and practice these skills, as well as offering mathematical content ranging from the most basic principles of logical thinking (cause and effect, order and sequence) to concepts that are studied formally in college.

MATHEMATICAL CONTENT

The mathematical content of *Zoombinis Mountain Rescue* focuses on data and information:

- ❑ attributes
- ❑ permutations
- ❑ categories
- ❑ organizations
- ❑ mappings
- ❑ sequencing
- ❑ algorithms
- ❑ algebraic thinking
- ❑ binary numbers
- ❑ operations

These are skills and concepts that underlie many areas of mathematics, including graphing, data analysis, statistics, and computer programming. The importance of the mathematics of data has increased as computers and information processing have become more prevalent in our society. Engaging children in this content may help form the building blocks for working with this kind of information in the future.

The mathematical content of the program is partially based on the Zoombini characters' attributes or features (variations in hair, eyes, nose color, and feet), as well as attributes of other characters and objects in the program. When your child works with attributes, he or she is working with variables or quantities of data—the building blocks of mathematical equations. Knowing how to solve for variables and combine them to form equations are crucial skills in mathematics. The *Zoombinis Mountain Rescue* gameplay provides an innovative way of gaining experience with attributes in the problem-solving process.

MATHEMATICAL AND SCIENTIFIC THINKING

Helping children develop and apply thinking skills is the primary focus of *Zoombinis Mountain Rescue*. The program doesn't tell children what to do—it gives them the freedom to explore each problem or puzzle and invent a solution. The game rewards logical reasoning and mathematical insight, and the greatest successes come not to those who act most quickly but to those who act most thoughtfully. This process of solving the puzzles is the process of mathematical and scientific thinking: organizing information in relevant ways, reasoning about evidence, and testing in a systematic manner. In this way, children develop skills used by mathematicians and scientists.

ORGANIZING INFORMATION

Organizing information in this game includes noting the goal, the number of Zoombinis or secondary characters present, the structure and function of objects in the given environment, and how each individual Zoombini or character might figure into the solution. Arranging Zoombinis by common traits or combinations of traits illustrates how organization can help in the process of solving the puzzles. Organizing information is also an important factor in activities that require the user to manipulate objects in a scene to reveal a rule or pattern and determine a sequence of moves. Mentally arranging the elements in a scene, followed by carefully observing the effect of each action, helps develop data that can be used to formulate a solution.

REASONING ABOUT EVIDENCE

Experimenting and then considering the evidence is an essential part of gameplay in *Zoombinis Mountain Rescue*. In most of the puzzles, the player may initially make a number of unsuccessful attempts; however, these attempts provide the very information needed to solve the puzzle. New insights are gained, and options can be eliminated while others will be identified as reasonable. Relationships, patterns, and groupings become evident based on feedback from each attempt. In gameplay, as in life, valuable information can be found from all efforts, whether or not the efforts result in immediate success.

SYSTEMATIC TESTING

Developing intelligent trial and error skills is often essential in gameplay. In some of the puzzles there are a limited number of tries. Those players who are efficient in developing theories, and then testing those theories in an effective manner, will be rewarded with greater success. Random guesses will yield initial information, but over time it is necessary to formulate a system for testing ideas. Thus, a player must organize and analyze information to develop a strategy for testing.

THE PUZZLES: EDUCATIONAL BENEFITS AND PUZZLE-SOLVING STRATEGIES

There are nine puzzles in *Zoombinis Mountain Rescue*, and each one presents a problem that requires observation and thinking skills to uncover the hidden logic in the scene. Each puzzle challenges the child to employ problem-solving skills: identify the problem or goal, develop hypotheses that can be challenged using systematic testing, and find a solution. Students can interact with puzzles at several levels:

- ❏ simple trial and error
- ❏ developing some explanations for how the puzzle behaves
- ❏ actively choosing one's moves in order to find the best evidence

At all of these levels, the player is applying thinking skills and receiving feedback from puzzles. The highest level (actively strategizing for the best evidence) is true scientific thinking. *Zoombinis Mountain Rescue* creates an environment where this kind of thinking is encouraged and rewarded.

THE ZOOMBINI PICKER

Before beginning the puzzles, the player encounters the Zoombini Picker, and is able to select the specific attributes for each Zoombini.

Choosing the features for each Zoombini at the beginning of the game is a good way to become familiar with the four attributes (hair, eyes, nose color, and feet) that will be used during play, and also to see how these attributes may be organized and grouped. Children can experiment as they create rescue teams. For instance, groups can be made in which the features are very evenly distributed, or with one or two common features, but groups may include only one pair of twins. Sometimes having similar groups makes it a bit easier to navigate the puzzles, while more varied distribution adds to the challenge.

At each screen, a team of Zoombinis is organized randomly. While working on some puzzles, players may find it beneficial to use the mouse to pick up and move Zoombinis to arrange them into groups based on common or uncommon features.

TURTLE HURDLE

- ❏ comparing
- ❏ sorting
- ❏ graphing
- ❏ sequencing
- ❏ forming and testing hypotheses

This first puzzle provides an introduction to the ongoing theme of sorting and ordering the Zoombinis by their attributes. The Zoombinis must line up on the backs of the turtles according to a sort order that is hinted at by clues on the log. A child may deduce, for example, "the Zoombinis with sunglasses should go at the beginning of the line of turtles." In this case, he or she is using the logical principle that a group of objects can be grouped according to a shared feature.

For this puzzle, looking at the features in a team of Zoombinis can yield valuable information about the kinds of groups that can be formed, and the number that will belong in each group. This is a good example of the statistical awareness that is useful in many of the puzzles. In addition, while numbers never figure explicitly into *Zoombinis Mountain Rescue*, this puzzle demonstrates that numerical reasoning is useful. For example, a player can count the number of unoccupied turtles in a row, and compare that to the number of remaining Zoombinis that possess a certain trait.

At the NOT SO EASY level, the log displays all five of the features that should be used to sort the Zoombinis. But the OH SO HARD level, because the number of clues on the log is reduced, requires more experimentation and more careful reasoning. Every incorrect try provides some valuable information. The player is now challenged to think about the resulting placement of the Zoombini, the feature that may have determined its position, and the number of Zoombinis in the party that share that feature. Using this information can form the basis for the next attempt. With each try, a player can determine which features should appear on empty spaces on the log, thereby enabling the placement of the Zoombinis in correct positions.

At the VERY HARD level, the concept of primary and secondary sorting is introduced. The player must sort the team into groups according to a primary attribute, and then into the order within each group based on secondary traits. For example, the player deduces that all of the Zoombinis with sunglasses should be placed at the front of the line. But how should these particular Zoombinis be sequenced within that group, using a secondary feature?

THE PIPES OF PALOO

- ❏ observation
- ❏ sorting
- ❏ comparing
- ❏ mapping

At its most basic level, this puzzle requires the player to sort by attribute and match Zoombinis according to identical traits. For example, for a pipe that has a picture of an eye, a player might place one-eyed Zoombinis, or perhaps Zoombinis with sunglasses, on either side. However, as the player continues to place Zoombinis, rearranging is usually necessary. While one may quickly find a way to open most of the valves, the key to this puzzle is careful selection and organization so that all of the Zoombinis are paired and can pass through the pipes. Looking at the distribution of features in the team of Zoombinis, and relating this to the attributes on the pipes, can yield insights about the kind and number of similar pairs that can be formed.

This activity also introduces the concept of networking and the inter-connectedness of points along network paths. At the OH SO HARD level, the pipes radiate out from a central point, and for the water to reach every Zoombini, each section of pipe leading from the "central" Zoombini must be open. Because Zoombinis are now matched along linear paths, some Zoombinis must simultaneously match on two sides according to different attributes. As in a network, each junction must have some association to all other points with which it is directly connected. At the VERY HARD level, the network becomes even more complex, as sections of the pipes cross paths, and all Zoombinis along each path must still connect to the central point.

AQUA CUBE

- ❑ trial and error
- ❑ spatial reasoning
- ❑ forming and testing hypotheses
- ❑ sequencing
- ❑ predicting

This is the first activity that does not require that a player consider the Zoombinis' specific attributes. This puzzle has a "guess my rule" element, challenging the player to deduce the function of each lever. Using trial and error to collect evidence is an important first step. With the first try, the only option is to guess, by pressing a lever and observing the result. When a player determines, for example, that "the first lever moves the light up and down, and the second lever moves the light front to back," one can then infer the result of pressing the third lever. Now one must plan carefully, remembering that there are a limited number of moves.

Spatial reasoning is also important when observing how the light moves along the three dimensions of the cube. In the Aqua Cube, a player must learn to distinguish between directional paths that may appear to be very similar, but are actually along different dimensions.

At the NOT SO EASY level, the player has exactly enough moves to acquire all of the Zoombinis.

The player will need to use the warp button at the OH SO HARD level, in order to have enough moves to collect all of the Zoombinis. The warp button also reveals useful information about the function of each lever.

At the VERY HARD level, the puzzle becomes more complex, with both an inner and outer cube. After initial experimentation, planning an extended sequence of moves is essential, especially because there are more Fleens in various positions throughout the cube. Avoid moving the light into a place that forces the next move into an area occupied by Fleens or into an area that has already been visited. The warp button plays an even greater role at this level.

BEETLE BUG ALLEY

- ❑ investigating permutations
- ❑ sequencing
- ❑ spatial reasoning
- ❑ mapping

This puzzle is similar to a simplified version of a logic cube. It challenges a player to make decisions based on permutations, or changes to the order of a set of objects. Understanding and accounting for the effect that a specific action has on several interrelated objects is an effective problem-solving tool. This kind of logical thinking can be applied to many situations, from rearranging seats at a sporting event to changing the code in a computer program.

Initial trial and error will help the player see the direction that each permutation follows. Every move the player makes can potentially move some beetles onto the correct markers while removing other beetles from their proper positions. The challenge here is to find a sequence of moves that allows every beetle to land on its matching color marker.

Rather than try to move each individual beetle into place immediately, a player might first consider the relative positions of the color markers, and then try to arrange the beetles themselves into a corresponding order. For example, seeing that the orange and blue markers are adjacent, one could try to arrange the orange and blue beetles so that they are next to each other, and then try to place them in the correct spot.

At the OH SO HARD and VERY HARD levels, the number of beetles increases, and the kinds of permutations become more advanced and have a greater effect on the beetles' positions. The player must plan several steps ahead to predict or direct where a beetle will arrive based on a sequence of moves. The player may benefit by moving a beetle into a temporary position, so that another set of movements can then be selected to move it into its appropriate space.

CHEZ NORF

- ❑ comparing
- ❑ following oral directions
- ❑ inferring
- ❑ organizing information
- ❑ using a logic table

Chez Norf is a logic puzzle that challenges the player to employ good listening skills, gather data, and make inferences to arrive at a solution. Due to the limited number of tries, the player must listen carefully to the Norfs' clues, and make strategic decisions before acting.

The Norfs often give indirect statements, and may explain what they *don't* want to eat, or what *others* want. Knowing what a Norf does *not* want is an important clue, and it encourages the player to use the process of elimination to narrow the number of possible answers. Additionally, children will use sets and subsets in this puzzle: the food categories act as attributes, and the individual items are the specific features. Recognizing these subsets helps a player use clues such as "none of my neighbors want milk or tea" to select the remaining item from the "drinks" category.

The notepad provides a way to depict the information derived from the Norfs' statements. This strategy of making graphical representations of data is an effective problem-solving tool, and is used on standardized logic tests and in computer programming.

As this puzzle introduces more variables at the higher levels, players may benefit from using the notepad as a way to organize the information.

BUBBLE BUMPERS

- ❑ observation
- ❑ sequencing
- ❑ sorting by attributes
- ❑ predicting

The grid shown in this scene is similar to what might be used in a computer program flowchart, and the Zoombinis are like bits of "data" which move through the grid and react and move according to its elements. As Zoombinis get stuck, are sent down a whirlpool, or successfully cross the gap, the player will begin to understand how each symbol on the grid acts and changes depending on Zoombini features. It is particularly important to understand the way different symbols on the grid affect Zoombinis when encountered in different sequences. The player will have to plan ahead so that the Zoombinis are placed in the right sequence. In learning to think systematically about this process, the player is engaged in the same kind of logical reasoning a software engineer utilizes.

It helps to follow a path through the grid mentally before placing a Zoombini at an entrance. Choose a Zoombini, look at its features, and then consider where it will go. In addition, think about the features of the remaining Zoombinis, and the order that will allow them all to make it across.

At the OH SO HARD and VERY HARD levels, the number of entrances and symbols on the grid are increased, and where each Zoombini enters the grid is of equal importance to the sequence. As in other puzzles in this game, correct sequencing requires that the player learn to look analytically at the team of Zoombinis. Examine the symbols on the grid, and perhaps group Zoombinis according to common traits that have some relation to these symbols. Then plan ahead, and picture a Zoombini's course before sending it on its path.

MAGIC MIRRORS

- ❑ observation
- ❑ comparing
- ❑ recognizing sets
- ❑ forming and testing hypotheses
- ❑ sorting

The involvement of the Fleens in this logical puzzle requires that a player consider a new set of features, but which fall into the same four attribute categories shared by the Zoombinis: hair, eyes, nose color, and feet. This puzzle is about sorting and organizing Fleens into sets according to their features. The player must mentally create groups and assign them values, such as "the images with boots cannot be the real Fleen," to narrow the possibilities.

The keys to solving this puzzle, as with many problem-solving situations, are careful observation and reasoning about the evidence gathered from each attempt. Random firing of cannonballs is unlikely to reveal the answer, especially at the higher levels. Careful observation of each broken mirror, and using the information as a basis for the next attempt, is crucial. Looking at the meter on the left side of the mirror, and seeing that an image has something in common (or not in common) with the real Fleen will help a player form a hypothesis about which traits are a match. Each additional try can be used to test that hypothesis.

When a player hits a mirror and sees, for example, that an image has two things in common with the real Fleen, the player can narrow the possible choices. Compare the image to other Fleen mirrors to decide which could possibly satisfy the conditions and which could not.

The increased number of Fleen mirrors at the higher levels can feel overwhelming at first. Remember that the same rules apply, and it might help to focus on small sections of the mirror pattern.

Perhaps the most useful piece of information is when a Fleen image has nothing in common with the real Fleen. A player can then eliminate four traits, and subsequently eliminate all Fleen images that have any of those traits from the set of possible answers.

SNOWBOARD GULCH

- ❑ observation
- ❑ sorting and ordering
- ❑ organizing data
- ❑ forming and testing hypotheses
- ❑ mapping

Snowboard Gulch has a “guess my rule” element, and encourages players to use testing strategies to find the solution. The player’s challenge in Snowboard Gulch is to deduce the hidden sorting rules, and map these rules onto the structure of the trails. Each branch in the trail is based on specific Zoombini features. To begin, the player sends a Zoombini down the slope and observes the path that it follows. With each try, the player can form a hypothesis about the sorting rules, and test this hypothesis through experimentation.

At the NOT SO EASY level, the sign next to the trail provides clues about the sorting structure of the trails, and will assist the player in predicting the path a Zoombini will follow. However, at the OH SO HARD and VERY HARD levels, clues are removed from the sign, challenging the player to rely more on testing to build a hypothesis and eventually uncover the sorting rule.

BOOLIE BOGGLE

- ❏ binary addition
- ❏ observation
- ❏ organizing data
- ❏ forming and testing hypotheses
- ❏ investigating cause and effect

Boolie Boggle is a logic puzzle that uses binary addition, a mathematical concept founded on a "base 2" system, using combinations of the numerals 0 and 1 to represent all number values. In this case, these numerals are represented by the Boolie's expressions, sad and happy. Each Boolie in a string has a different place value. The first Boolie is in the "ones" place, the second is in the "twos" place, the third is in the "fours" place, and so on.

Each time a pinball hits a Boolie, it is "adding a number" or causing a change to the string, which makes at least one Boolie change expression. For example, if a pinball hits a sad Boolie, the Boolie will change to happy, and if a pinball hits a happy Boolie, it will flip back to sad; the Boolie to the left will also change. This behavior is similar to how place value functions in the base 10 system. For example, in a car odometer, when the number on the far right rolls back over to zero, the number to its left increases by one. Also, if all of the Boolies in a string are happy, but there are still pinballs approaching, the next pinball will reset all of the Boolies to sad, just as a car odometer will reset from "999999" to "000000."

Here is an example of Boolie combinations, corresponding to the number sequence 0, 1, 2, 3, and 4.

0 1 2 3 4

At the NOT SO EASY level, the Boolies will only come in pairs. The player will benefit from some initial experimentation to see how the Boolies change depending upon their combination of expressions and the number of balls that hit them. For example, observe what happens when two sad Boolies are hit with one ball, then two balls, and so on. With time, the player will recognize that a certain pair of Boolies can be successfully changed with one ball, while other combinations require more.

At the OH SO HARD and VERY HARD levels, the Boolie strings become longer, challenging the player to think through additional steps and further investigate the binary system. Sometimes, planning two steps ahead by looking at the next set of pinballs is beneficial.

ENRICHING YOUR CHILD'S LEARNING EXPERIENCE

Having an active interest in your children's learning activities often reinforces their enjoyment and skill development. For example, it has long been known that children whose parents regularly read to them become better readers. Something similar can apply to the playing of this game and the learning that takes place. Being an enthusiastic and interested participant in the game will help inspire your young learner.

In addition, children are likely to learn more if they have opportunities to talk about the game with friends and family. Sharing ideas with other players can open up new possibilities and perspectives. Putting their explanations and strategies into words will encourage deeper thinking and help children consolidate their understanding of the game.

GETTING INVOLVED

Try playing the game yourself. Attempting to solve the puzzles will help you understand and appreciate the kinds of thinking that your child is doing. You will likely start enjoying it, and become engaged in the challenges as well!

Don't be surprised if the puzzles are difficult at first for you as well. There is actually a great opportunity here: your child can learn a tremendous amount by teaching you! Discussing ideas may help the child bring these ideas into focus, and help articulate his or her understanding and mathematical thinking. In addition, watching you play and listening to you think aloud about the puzzles will help your child learn new strategies.

Neither you nor your child should expect to know the answers right away. Players will learn a lot by following wrong paths and making errors. The key to solving the puzzles is how you evaluate the evidence revealed by incorrect attempts. Much of the excitement in the game is in developing a strategy that consistently lets you succeed at a puzzle. Even after you have such a strategy, solving the puzzle each time will bring new ideas and understandings. Working with your child may inspire him or her to become more involved with the game and increase the quality of learning.

WHEN THE GOING GETS TOUGH

Sometimes a puzzle or a new difficulty level can seem especially challenging, and your child may want your help. You can reassure your child that perplexity can be a normal part of the game, and offer encouragement to keep trying. Being challenged is an essential part of the learning that takes place in the game. It is this difficulty that stimulates logical thinking and problem solving.

At an easier level of play, children may have become accustomed to "beating" puzzles by getting all the Zoombinis through. When a child moves up a level and faces a harder challenge with increased variables, trying to "beat" the puzzles may not be a practical goal right away. Instead, it is time to take risks and experiment in order to collect clues. Part of the challenge of a higher level is having the patience to practice more trial and error, and use more attempts, on the path to success. Every unsuccessful attempt adds to your child's base of information about the way the puzzle functions.

Sit with your children as they play, and listen as they explain the problem. Ask them about areas of the puzzle they have figured out so far, and about the parts they haven't. As they make an attempt, ask them what they notice about the feedback they received from the program. You may want to help them further, by asking questions that might draw their attention to useful clues in the scene, or by subtly suggesting a few moves. Without actually revealing the answer, you can help guide your child toward recognizing a successful path.

Encourage your child to play with a friend, sibling, or adult family member. The game is designed to accommodate multiple players and cooperative turn-taking, and the conversation that naturally occurs between players will help develop better understanding. The game can become more engaging as players have opportunities to share their revelations about the puzzles, and as they help a partner discover the hidden rules.

If your child is still feeling uncertain, or feels frustrated about a specific puzzle, there are a couple of things your child could do:

- ❏ Take a break from that puzzle for a while by taking Zoombinis along other paths. Playing another activity may yield insights that can be applied when your child decides to try the puzzle again.
- ❏ Play quickly, enjoy the game, and don't worry about solving the entire puzzle. Even when a puzzle seems very difficult, you can often get at least a few Zoombinis through to the next scene.
- ❏ If at a higher level, sign in as a new player to return to a lower level (or use Practice mode), and play the puzzle again to experience success and re-build confidence. Then try the harder level again, and apply strategies used while solving the lower level.

ENCOURAGING YOUR CHILD'S PROGRESS

Your child's mastery of successive levels of the game is one clear indication of progress. But the child who can move many Zoombinis through the game, even without advancing to new levels, is also mastering the mathematical content and applying thinking skills. Perhaps your child was only able to move three Zoombinis through a puzzle at the Not So Easy level, but now succeeds at getting six through. Your child has begun to understand the rules of the puzzle.

Listen to your children talk about the game. Are they involved and engaged in the puzzles? How do they explain the behavior of the program? How well do they explain their own strategies? Do they see interesting connections between the game and the problem solving they do in school or elsewhere in their lives? These conversations help reveal that your child is learning and applying the skills they have practiced in the game.

Remember that your child's problem-solving skills are constantly developing and growing. Certain ideas may take root gradually, and improvement may appear to occur in small bursts. As your child is intrigued and challenged by the game, progress is being made regardless of the specific success level with a puzzle.

MAKING CONNECTIONS TO THE GAME

As in the puzzles in *Zoombinis Mountain Rescue*, many things in our everyday lives require logical thinking and problem-solving skills. Encourage your child to think of ways that the tasks faced by the Zoombinis mirror everyday issues. A quarterback in a football game must observe the surroundings, consider the behavior of the defense, and decide which action will gain the most yards. The meteorologist on the local news makes educated predictions about future weather by gathering information. In science class, students experiment with combinations of liquids to see how they interact and change, and they will therefore discover certain rules based on the experiments.

Like the Zoombinis, objects in our lives may have several independently varied attributes in different combinations. A child's baseball card collection can be grouped by teams, by playing position, by batting averages, etc. It can be fun for you and your child to look for such objects around the house and discuss what they have in common with Zoombinis and how they can be arranged, grouped, and organized. You can even encourage your child to consider attributes that he or she shares with friends and family members.

You can also create games using varied objects. In a guess-my-rule game, your child can group items in left and right hands and then ask you to explain what the objects in each hand have in common. Or create a simplified version of Magic Mirrors, by drawing several characters in boxes on grid paper and challenging your child to discover the "real" one based on your feedback.

Your child may make other connections to the game's characters or story which do not appear to be mathematical in nature but which nevertheless are important to them. Any fantasy play or storytelling about the game should be encouraged, as it reinforces imagination and engagement in the game which ultimately helps your child master the mathematical ideas.

EDUCATIONAL RESOURCES

FOR CHILDREN

Anderson, Karen, ed. *GAMES Magazine Junior Kids Big Book of Games*, 1990. A collection of creative verbal, visual, and logic puzzles. Includes mazes, riddles, and teasers.

Anno, Mitsumasa. *Anno's Math Games III.* New York: Putnam, 1999. Contains a variety of puzzles for younger children involving classification, sequencing, measuring and more.

Tang, Greg. *The Grapes of Math.* Scholastic Press, 2001. Math riddles that encourage children to engage in problem solving, grouping, and critical thinking.

Burns, Marilyn. *The Book of Think.* Little Brown and Company, 1976. A collection of puzzles and thinking activities that challenge children to use problem solving skills.

Zoombinis Logical Journey,™ CD-ROM, The Learning Company, 2001. The original math and logic software adventure of the Zoombinis.

FOR PARENTS

Burns, Marilyn. *Math for Smarty Pants.* Boston, MA: Little, Brown and Company, 1982. Explores various aspects of mathematics and shows that different people are good at different things.

National Council of Teachers of Mathematics. *Curriculum and Evaluation Standards for School Mathematics.* Reston, VA: NCTM, 2000. Developed over several years with input from parents, teachers, mathematics education researchers, and mathematicians, this NCTM document summarizes goals for mathematics taught in kindergarten through grade 12. Visit: http://standards.nctm.org

Papert, Seymour. *The Children's Machine: Rethinking School in the Age of the Computer.* BasicBooks, 1993. Offers a thoughtful perspective on the educational value of computers.

Seymour, Dale. *Critical Thinking Activities in Patterns, Imagery, and Logic.* Dale Seymour Publications, 1988. Offers a variety of worksheets with engaging problem solving and thinking activities.

Stenmark, Jean Kerr, Virginia Thompson, and Ruth Cossey. *Family Math.* Berkeley, CA: Lawrence Hall of Science, 1986. An excellent collection of math activities emphasizing the development of problem-solving skills and the use of hands-on materials to gain mathematical understanding.

Zawojewski, Judith S. *Dealing With Data and Chance.* NCTM publication, 1991. Considers children's natural understanding and daily use of data and chance and then addresses how to build on these natural abilities. Contains activities designed for classroom or home schooling environments illustrating the themes of data gathering, communication, problem solving, and logical reasoning.

http://www.nctm.org/publications
Provides an extensive list of journals and books about mathematics in education.

MATH-RELATED ORGANIZATIONS

Contact these organizations to receive more information that will support your involvement in your child's math education.

National Council of Teachers of Mathematics
Membership Services and Information
1906 Association Drive
Reston, VA 22091
http://www.nctm.org
Email address: nctmath@tmn.com

EQUALS ("FAMILY MATH")
Lawrence Hall of Science
University of California, Berkeley
Berkeley, CA 94720
Equals program: (510) 642-1823
Internet: http://www.lhs.berkeley.edu/equals/equals.html

Marilyn Burns Education Associates
(415) 332-4181
Email address: mbea@mathsolutions.com
Internet: http://www.mathsolutions.com

Teachers Involve Parents in Schoolwork (TIPS)
Center for the Social Organization of Schools
Johns Hopkins University
3401 N. Charles St., Baltimore, MD 21218
Internet: http://www.csos.jhu.edu/p2000/tips/tipsmain.htm

FOR PARENTS OF CHILDREN WITH SPECIAL NEEDS

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The Alliance for Technology Access (ATA) tests software programs for accessibility and usefulness with the most popular adaptive access devices for computers. For more information about the Alliance, its programs, and its affiliated centers, call (415) 455-4575. Visit their Web site at http://www.ataccess.org for more information.

ABOUT TERC

Zoombinis Mountain Rescue is based on concepts developed by Chris Hancock and Scot Osterweil at TERC. TERC is an education research and development organization committed to improving mathematics and science learning and teaching. The strands of its work include creating innovative curriculum, fostering teacher development, conducting research on teaching and learning, and developing technology tools. Founded in 1965, TERC is a private, nonprofit enterprise. It is located in Cambridge, Massachusetts.

Scot Osterweil is a software designer at TERC. He has a background in computer animation, public television, and theater. He is the father of two sons and the author of two children's books.

Chris Hancock researches how computers can support mathematics learning. He is the creator and producer of *Tabletop* and *Tabletop Jr.*, computer-based data tools for kids. He has taught computer science at Harvard Extension, and holds New England Masters swimming records for the 100m and 200m freestyle.

IF YOU CAN'T GET STARTED

Please read this section before trying to reach Technical Support if you are having any problems with *Zoombinis Mountain Rescue*. The program was thoroughly tested and most of the technical problems we anticipate users having will be rooted in device drivers for peripheral hardware. Outdated device drivers (the software which operates hardware such as CD-ROM players and sound) can create problems such as error messages and poor performance. If you are unable to resolve your problem through the suggestions provided here, please make absolutely sure that the driver for each piece of hardware is current by contacting your computer manufacturer or individual hardware manufacturers. Newly purchased computers are not necessarily a guarantee that the device drivers are current.

One More Thing!

We recommend that when you start *Zoombinis Mountain Rescue*, it is the only application running on your computer. Running other programs simultaneously may affect the program's performance or the amount of computer memory available to run *Zoombinis*. Below are some general technical support hints as well as instructions to verify that *Zoombinis Mountain Rescue* is the only program running (in addition to the operating system).

TROUBLESHOOTING

WINDOWS®

Read the following list of common problems. If you still have questions, contact our Technical Support Center at http://www.support.learningco.com.

1. The "Zoombinis Mountain Rescue" program icon does not appear on the desktop or in the Start menu.

❑ Reinstall the program.

2. You get a message telling you that there is not enough available space on the hard disk.

Zoombinis Mountain Rescue requires 50 MB of free hard disk space for the program's data and executable files.

❑ Create some free hard disk space by removing some files after backing them up.

3. You see a message telling you that there is not enough memory to run the program.

Zoombinis Mountain Rescue needs at least 32 MB of installed memory (RAM) to run. Your computer's memory may be filled with other programs that are running in the background.

❑ Close any other applications that are running, and try starting the program again.

4. The program doesn't launch.

❑ Update your display adapter driver. See your video card manufacturer's documentation.

- ❑ If the program appears to launch for a moment, and you get a black screen before returning to the Windows desktop, manually set your video display settings to 16-bit (thousands) colors and 800x600 resolution.

5. The mouse doesn't seem to work.

There are times in the program when the animation or sound cannot be interrupted. You will see the hourglass cursor on the screen and any key presses or mouse clicks will be ignored.

- ❑ Wait until the animation or sound stops and your normal cursor returns. Then try pressing the keys or clicking the mouse again.

6. Program speed is very slow.

Zoombinis Mountain Rescue needs at least a Pentium 200 MHz computer with an 8x-speed CD-ROM drive for basic performance.

- ❑ Close any other applications that are running.
- ❑ Turn off Background Animations at the Settings screen in the Options menu.
- ❑ Make sure that you have the latest Windows video drivers for your graphics card. (Contact the manufacturer to obtain the latest drivers.)

7. You do not hear music, sound, or speech.

- ❑ Check that the speakers are properly connected to your computer.
- ❑ Be sure they are getting power and are turned on, and that the volume is turned up.
- ❑ Make sure that your sound card is Windows compatible and is properly installed for Windows. Be sure that your sound card is specifically designed to work with your version of Windows. Also check that the volume is properly set. (See the manufacturer's documentation for more information relating to your sound card.)
- ❑ Make sure the mixer level setting is correct.
- ❑ Click on the **START** button. Choose **PROGRAMS** from the Start menu. Next choose **ACCESSORIES**. Then choose **MULTIMEDIA**, and choose **VOLUME CONTROL**. Make sure that the sliders on the mixer control panel are all the way up and that no mute buttons are selected.

8. Strange graphics appear; the game action stops unexpectedly.

- ❑ Try using the 800x600, high-color (24-bit) display mode driver that came with your video card. (See your Windows documentation for more information.)
- ❑ Make sure you have the latest Windows video drivers installed. (Contact your video card manufacturer for more information.)

9. Colors don't look right.

- ❑ Adjust your monitor's color and brightness.
- ❑ Make sure the color display is set to high color (24-bit).
- ❑ Turn off your screensaver.
- ❑ Close any other applications that are running.

- ❑ Make sure you have the latest graphics drivers installed.
- ❑ Contact your video card manufacturer for more information.

10. The game window seems small.

The program window may not fill the entire screen.

- ❑ For maximum window size, make sure that the display mode is set to 800x600. (See your Windows documentation for more information.)

11. You are not able to connect to our online Web sites.

This feature requires a browser.

- ❑ Make sure that you have a browser properly installed. See your browser and Windows documentation for more information.
- ❑ Make sure that the files with an .HTM extension (for example, bookmark.htm) are associated with the browser of your choice. To check this, double-click on any .HTM file. If the browser does not launch, create an association from the File Manager. See your Windows documentation for more information.

MACINTOSH®

1. The "Zoombinis Mountain Rescue" program icon does not appear.

- ❑ Make sure the program CD is inserted in the CD tray, printed side up.
- ❑ Try restarting your computer and/or rebuilding your desktop.
- ❑ Make sure that the CD-ROM drivers are correctly installed.

2. You get a message telling you that there is not enough available space on the hard disk.

Zoombinis Mountain Rescue requires 50 MB of free hard disk space for the program's data and executable files.

- ❑ Create some free hard disk space by removing some files after backing them up.
- ❑ Adjust the Virtual Memory setting to take less hard disk space. (See your Macintosh documentation.)

3. You see a message telling you that there is not enough memory to run the program.

Zoombinis Mountain Rescue needs at least 64 MB of installed memory (RAM) to run. Try to increse available memory and then start the program again. (Depending on which Internet browser you use, you may not be able to run both your browser and the program with only 64 MB of RAM.)

- ❑ Close any other applications that are running.
- ❑ Turn off or remove from the System Folder non-Apple® control panels.
- ❑ Reduce the size of the disk cache in the memory control panel. (See your Macintosh documentation.)
- ❑ Turn off AppleTalk®

4. The mouse doesn't seem to work.

There are times in the program when the animation or sound cannot be interrupted. You will see the watch cursor on the screen, and any key presses or mouse clicks will be ignored.

❑ Wait until the animation or sound stops and your normal cursor returns. Then try pressing the keys or clicking the mouse again.

5. The music and voice in the game are too loud or too soft.

❑ Choose Volumes from the Control Panels. Adjust your system's speaker volume as needed by selecting the Volume setting.

6. You do not hear music, sound, or speech.

❑ Make sure that the Volumes setting in the Sound control panel in Control Panels is not set to zero.

❑ If you have external speakers, make sure they are turned on and getting power and that they are properly connected to your computer. Also check the speaker volume.

❑ Turn off or remove from the System Folder non-Apple control panels and extentions. (Leave the CD-ROM drivers.) Restart your computer.

7. You hear popping noises in the game sounds and animation.

If you are running System 8.6 or higher, installing the Apple Sound Manager (included on your program CD) should eliminate this problem. Sound Manager changes how the system handles sound and improves the program's sound quality. To install Sound Manager, follow the instructions below:

❑ Insert the program CD into your CD-ROM drive. In the open program window, scroll down until you see two icons: Sound Manager and Sound. Drag the Sound Manager and Sound icons into your active System Folder icon. (Do not open the System Folder first.) The active System Folder has a picture of a small computer on it. Click on OK in the dialog box that appears. Restart your computer.

8. The program window seems small.

The program window may not fill the entire screen.

❑ For maximum window size, make sure the display mode is set to 640x480 in the Monitors control panel.

9. Program speed is very slow.

Zoombinis Mountain Rescue needs at least a 266 MHz Power Macintosh computer with an 8x-speed CD-ROM drive for basic performance.

❑ Make sure Virtual Memory is turned off in your Memory control panel.

10. You are not able to connect to our online Web sites.

This feature requires a browser.

❑ Make sure that you have a browser properly installed. See your browser and Macintosh documentation for more information.

TECHNICAL SUPPORT

If you are still having problems with the *Zoombinis Mountain Rescue* software, please contact our Technical Support Center on the web at http://support.learningco.com.

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